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**PRE-APPEAL BRIEF REQUEST FOR REVIEW**Docket Number (Optional)  
GP-304342 (8540R-000075)

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)]

On \_\_\_\_\_

Signature \_\_\_\_\_

Typed or printed name

Application Number  
10/790,613Filed  
March 1, 2004First Named Inventor  
Kenneth George Stahl, Jr.Art Unit  
1725Examiner  
Ing Hour Lin

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).  
Note: No more than five (5) pages may be provided.

I am the

☐ applicant/inventor

☐ assignee of record of the entire interest.  
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)

☒ attorney or agent of record. 44,672 (CAE)  
Registration number 55,861 (EKS)

☐ attorney or agent acting under 37 CFR 1.34.  
Registration number if acting under 37 CFR 1.34 \_\_\_\_\_

Signature

Christopher A. Eusebi / Erica K. Schaefer  
Typed or printed name(248) 641-1600  
Telephone numberFebruary 13, 2007  
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below\*.

☐ \*Total of \_\_\_\_\_ forms are submitted.



**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application No.: 10/790,613  
Filing Date: March 1, 2004  
Applicant: Kenneth George Stahl, Jr. et al.  
Group Art Unit: 1725  
Examiner: Ing Hour Lin  
Title: CASTING MOLD AND METHOD FOR CASTING  
ACHIEVING IN-MOLD MODIFICATION OF A CASTING  
METAL  
Attorney Docket: GP-304342 (8540R-000075)

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

**PRE-APPEAL STATEMENT AND REQUEST FOR REVIEW**

**OVERVIEW**

Applicants respectfully submit that there is at least one clear error in the Final Office Action mailed November 13, 2006. In particular, none of the references cited by the Examiner teach, suggest or disclose adjusting the chemistry of molten aluminum after the molten aluminum is introduced into the casting mold during a casting process, as recited in Claims 1, 18 and 19. In addition, it is improper to combine Chandley with Setzer to arrive at Claims 1, 18 and 19 as Setzer teaches away from this modification. The cited prior art, as previously characterized in Applicants' Response of August 25, 2006, pages 2-7, Applicants' Responsive Amendment of February 15, 2005, pages 8-

15, and Applicants' Responsive Amendment of September 21, 2005, pages 9-12 does not teach or fairly suggest adjusting the chemistry of molten aluminum after the molten aluminum is introduced into the casting mold during a casting process as claimed in Applicants' application. Accordingly, Applicants assert that the Examiner's final rejection is based on clear error as one or more of the recited elements in the claims is missing from the cited prior art, and there is no clear motivation to combine the cited references.

#### **DISCUSSION OF REFERENCES**

Pending Claims 1, 3-4, 8-11, 13, 18-19 and 23-25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chandley et al. (U.S. Pat. No. 5,161,604, hereinafter "Chandley") in view of Setzer et al. (U.S. Pat. No. 5,230,754, hereinafter "Setzer"). However, in Chandley, there is no discussion whatsoever of casting aluminum or casting aluminum with a metallurgical modifier. The Examiner argues that the claims of Chandley are broad to encompass all types of materials; however, Chandley does not teach, suggest or disclose whatsoever casting aluminum or casting aluminum with a metallurgical modifier. Rather, Chandley teaches the use of a vacuum to pull molten iron into a mold, wherein the mold includes an alloyant stuccoed to a wall of the mold. Due to the different chemical properties of aluminum and iron, if aluminum was used in the casting process of Chandley it would likely create undesirable components which would have chemical properties distinctly different than that originally contemplated by Chandley. In particular, Chandley discloses the use of a magnesium based alloyant (Column 5, lines 4-7) to nodularize or spheroidize the carbon in the melt (see at least Column 5, lines 5-12). Thus, modifying Chandley to include aluminum

casting would render the method of Chandley unsatisfactory for its intended purpose and is improper, as nodularized or spherodized carbon are structures formed in iron/carbon alloys, not aluminum alloys. In addition, employing the techniques of Chandley to cast aluminum would render the method of operation of Chandley unsatisfactory (i.e., magnesium would not nodularize the carbon in aluminum, as aluminum is not carbon based), the Examiner's modification of Chandley with Setzer is improper. Applicants also assert it is improper to modify Chandley with Setzer when Setzer teaches away from this modification.

Setzer teaches forming an aluminum-boron-strontium alloy by mixing the strontium thoroughly in a molten bath of pure aluminum. Setzer teaches that this process is necessary to ensure a uniform amount of strontium throughout the molten aluminum. Only **after** the molten aluminum and alloyant is thoroughly mixed in the bath does Setzer indicate casting the resulting alloy, as the mixing process ensures that the alloyant (strontium) is present throughout the molten aluminum in the desired quantities (necessary for creating the grain refinement in the resulting aluminum alloy). Thus, Setzer teaches away from or warns against introducing the molten aluminum into the casting mold before the molten aluminum is introduced to the alloyant, in direct contrast to Chandley. As noted herein, Chandley teaches the use of a vacuum to pull molten iron into a mold before introducing the iron with the alloyant stuccoed, and not the mixing of the alloyant with the molten iron prior to entry. Thus, as Setzer teaches away from modifying the metallurgical properties of molten aluminum in the casting mold, and further teaches that in order to ensure a uniform amount of strontium throughout the molten aluminum the strontium must be mixed thoroughly in a molten bath of pure

aluminum prior to introducing the molten aluminum into the casting mold. In view of this, Applicants submit that one skilled in the art would not be motivated to combine the Chandley reference with the Setzer reference.

Further, Applicants submit the Examiner is improper in asserting that one of ordinary skill, based on the claims in the Chandley reference, would find it obvious to modify Chandley with Setzer to arrive at Applicants' claims herein. In particular, Applicants note that although one skilled in the art might find it obvious to try various combinations of prior art components, **this is not the standard of 35 U.S.C. § 103.** (In re Geiger, 815 F.2d 686, 688, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987). Rather, in order to find Applicants' claims obvious, the Examiner must produce both the suggestion and expectation of success in making such a combination. As Chandley does not teach, suggest or disclose any desirability in using his process to cast pure aluminum, and further, as Setzer teaches away from modifying molten aluminum with an alloyant after the molten aluminum enters the mold, Applicants respectfully assert that the Examiner's combination of Chandley with Setzer is improper.

#### **CONCLUSION**


It is respectfully submitted that adjusting the chemistry of molten aluminum after the molten aluminum is introduced into the casting mold during a casting process is not obvious in view of the references cited by the Examiner. The cited references simply do not teach, suggest or disclose adjusting the chemistry of molten aluminum after the molten aluminum is introduced into the casting mold during a casting process, as claimed in Claims 1, 18 and 19. Reconsideration and withdrawal of all of the outstanding rejections are thus respectfully requested.

Respectfully submitted,

Dated: February 13, 2007

HARNESS, DICKEY & PIERCE, P.L.C.  
P.O. Box 828  
Bloomfield Hills, Michigan 48303  
(248) 641-1600

CAE/EKS/chs

By:   
\_\_\_\_\_  
Christopher A. Eusebi, Reg. No. 44,672  
Erica K. Schaefer, Reg. No. 55,861